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Executive Summary

The City of Mountain View is dedicated to providing its residents, businesses and institutions with a reliable supply of high quality water. To ensure Mountain View continues to meet this goal, the City has prepared this Urban Water Management Plan (UWMP) to outline the City's current and future water needs, water conservation programs, water recycling projects and disaster and drought preparedness plans.

Each of these subjects are summarized below and described in further detail in the UWMP.

Mountain View's Water System

The City of Mountain View currently serves over 16,000 water connections representing the majority of Mountain View's 70,000 residents, businesses and institutions. The City operates and maintains water fluoridation facilities, seven potable water (drinking water) wells, one irrigation well and two water storage reservoirs, which have a total capacity of 6.7 million gallons. The City is also constructing two additional water storage reservoirs to bring the City's total storage capacity to 14 million gallons. Table A on the following page shows Mountain View's water usage by customer type. A map of Mountain View's service area is included as Figure 2 in Section 3 of this UWMP.

Mountain View's Water

The City receives most of its water from two wholesale water agencies, the San Francisco Public Utilities Commission (SFPUC) and Santa Clara Valley Water District (SCVWD). Table B on the following page details Mountain View's water supply.

Mountain View's Water, continued...

Table A: Water Use by Customer Type

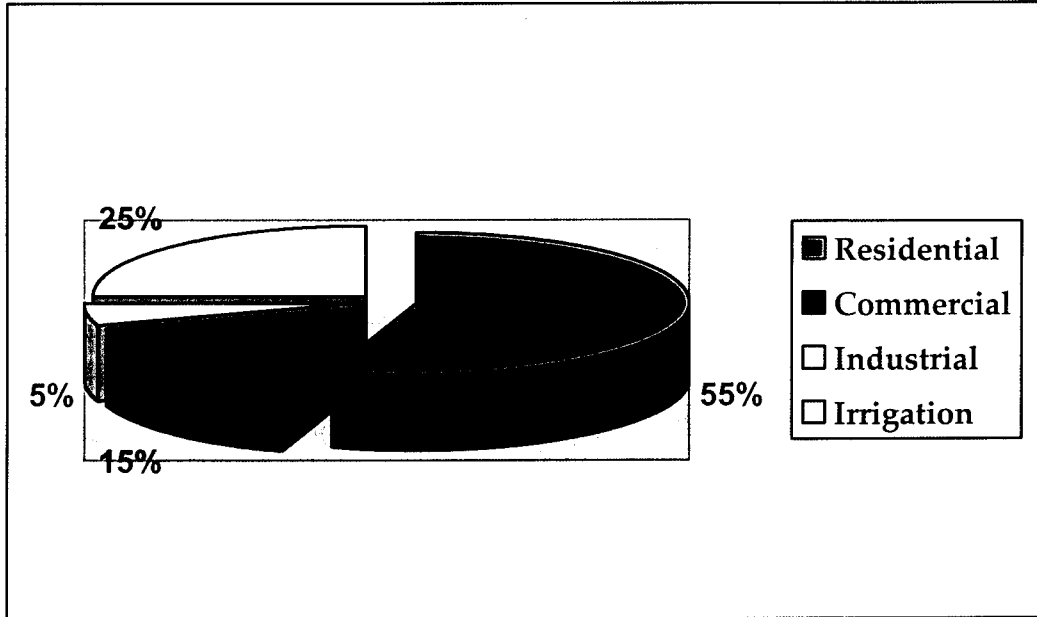
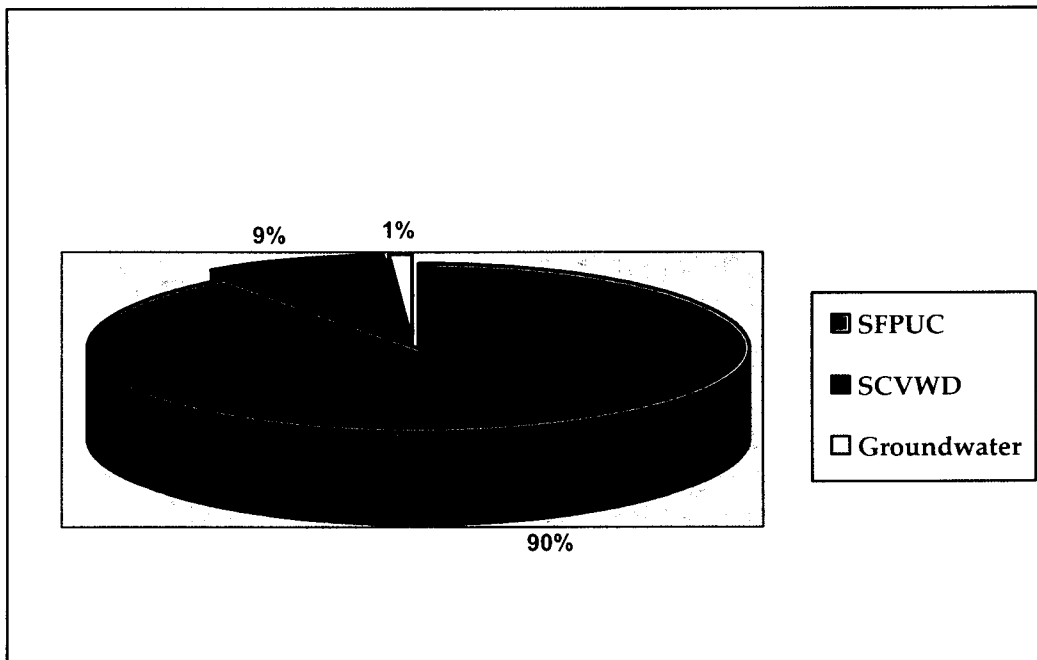


Table B: Mountain View's Water Supply



San Francisco Public Utilities Commission

The City receives approximately 90% of its water supply, an average of 11.3 million gallons per day (MGD), from the SFPUC. SFPUC water flows from the Sierra Nevada Mountains to Mountain View through the Hetch-Hetchy regional water system. The City has a contractual supply assurance from the SFPUC to provide the City with up to 13.6 MGD.

Santa Clara Valley Water District

The SCVWD supplies the City with approximately 9-10% of its water, an average of 1.2 MGD, through its water distribution system. The City's contract with the SCVWD provides for a 2 MGD supply assurance.

Groundwater

Mountain View also operates seven groundwater wells for supplemental and emergency water supply. The City also operates an irrigation well to supplement the use of freshwater and pond water at Shoreline Regional Park.

On average, approximately 1% or less of the City's water is supplied through these wells. Over the next 25 years, groundwater use is expected to increase to approximately 2%-3% of Mountain View's total water supply. The City has the ability to use groundwater to augment wholesale supply in the event of a water service disruption in one or both of the regional distribution systems.

Future Supply and Demand

Based on uniformly applied growth projections, information on planned development projects, recycled water projects and water conservation programs, the City has estimated its water demand will increase approximately 15% by the year 2030. This percentage increase is well within the existing supply capacity and long-term supply assurances provided to the City by the SFPUC and SCVWD.

Water Conservation

Water conservation is an important goal for the City of Mountain View and the City expects conservation programs to reduce water demands by 5 to 8 percent over the next 25 years. The City is also member of the California Urban Water Conservation Council and participates with the SCVWD in all water retailer conservation programs.

Water Conservation, continued...

These conservation programs include:

- Metering and Water Rates: The City meters all water connections and bills customers using a tiered water rate structure. In the tiered rate structure, the water rate increases with consumption, providing an economic incentive to conserve water.
- Residential Water Audits: Mountain View, in conjunction with the SCVWD, conducts audits of single and multi family residences and notifies residents of high water usage to help identify water loss due to leaking or defective pipes. On average, approximately 600 residential water audits are performed each year.
- Turf Audits: Free site evaluations and turf audits are available for business owners with more than one acre of landscaping. The program uses satellite technology and computer imaging to create water budgets for these customers. An average of 10 turf audits are performed every year.
- Plumbing Retrofits: This program provides economic incentives for residential and business owners who retrofit existing plumbing with high-efficiency fixtures. Low-flow showerheads, kitchen and bath faucet aerators and toilet leak detection tablets are available at no cost. For example, in the last five years, the City has distributed over 1,300 low-flow showerheads.
- Washing Machine Incentive Program: Mountain View's residential water customers can receive up to \$150 in rebates for the purchase of high-efficiency washing machines and up to \$350 for commercial machines. Over 1,200 washing machine rebates have been issued since 2001.

Water Recycling

The City is in the process of developing a recycled water system, in conjunction with the Palo Alto Regional Water Quality Control Plant and the City of Palo Alto. This project has the potential to offset irrigation water consumption in the City's North Bayshore Area. Once constructed, the City anticipates the recycled water system, at full utilization, could offset the City's demand for potable water by up to 10%.

Drought and Disaster Preparedness

Depending on the duration and severity of a drought or water shortage due to a natural disaster, the City will implement its water shortage contingency plan. This plan outlines actions to reduce water consumption in the event Mountain View's water supply is reduced by 10%, 25%, 40% and 50%.

Actions to be taken include:

- Reduced irrigation in City parks and on roadway landscapes
- Prohibition on filling new swimming pools or refilling existing swimming pools
- Deferral of landscape installation in new developments

Under the most severe conditions, the City would consider prohibitions on new development, discontinuance of all turf irrigation and mandatory water budgets for all water customers.

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Section 1.1: Coordination With Other Agencies

Throughout the development of this Urban Water Management Plan (UWMP), Mountain View coordinated with numerous water agencies. Details of these efforts are outlined below.

Wholesale Water Suppliers

The City of Mountain View worked collaboratively with its two wholesale water suppliers, the San Francisco Public Utilities Commission (SFPUC) and the Santa Clara Valley Water District (SCVWD), to exchange information needed to develop Mountain View's UWMP. Information exchanged included current and projected water use, population and water demand data. Mountain View also worked with these water agencies to develop other documents which provided important water use and supply data for Mountain View's UWMP. These documents include:

- Interim Water Supply Allocation Plan
- SCVWD 2001 Groundwater Management Plan
- SFPUC Drought Contingency Plan
- SCVWD Water Infrastructure Reliability Report
- Maddaus Water Management End Use Model
- SCVWD UWMP
- SFPUC UWMP

Each of these documents is also referenced in the Bibliography.

Wastewater Agency Coordination

Wastewater data, discussed in Section 9, was obtained from the Palo Alto Regional Water Quality Control Plant. All of Mountain View's wastewater flows to this treatment facility.

Water Retailer Coordination

Neighboring water retailers, including the California Water Service Company (Cal Water), the City of Palo Alto and the City of Sunnyvale, were contacted to provide them with an opportunity to comment on this plan. A list of all water retailers notified by the City of Mountain View is included in Appendix A.

Other Relevant Public Agency Coordination

BAWSCA

The Bay Area Water Supply and Conservation Agency (BAWSCA) was created on May 27, 2003 to represent the interests of 28 retail water agencies, including Mountain View, in Alameda, Santa Clara and San Mateo counties who purchase water on a wholesale basis from the SFPUC. BAWSCA's role in the development of the 2005 UWMP is to coordinate with member agencies and the SFPUC to maintain consistency between the SFPUC UWMP and other member agencies plans.

Santa Clara County

As there are unincorporated areas within Mountain View's service area, the City provided the County of Santa Clara with an opportunity to comment on the draft plan. No comments had been received from Santa Clara County at the time this document was printed.

Table 1: Coordination with Appropriate Agencies

Agency Name	Participated in UWMP Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Received Copy of Draft	Sent Notice of Intention to Adopt	Not Involved/ No Information
Water Wholesalers							
San Francisco Public Utilities Commission	X			X	X	X	
Santa Clara Valley Water District	X	X		X	X	X	
Wastewater Agencies							
Palo Alto Regional Water Quality Control Plant				X		X	
Water Retailers							
City of Palo Alto						X	
City of Sunnyvale						X	
California Water Service						X	
Other Agencies							
Bay Area Water Supply and Conservation Agency	X	X		X	X	X	
Santa Clara County						X	

Section 1.2: Internal Coordination

The City of Mountain View provides retail water to over 70,000 residents, businesses and institutions within its service area. For the UWMP to accurately reflect the complexity of the demands placed on the municipal water system, Public Works Department staff worked with pertinent City Departments to obtain water use data and other relevant information on current and planned projects/activities affecting demand. City departments consulted include:

- The Community Development Department (Responsible for current and advanced planning within the City)—Contacted for information regarding current and future demographics, planned private development projects and potential future land use changes.
- The Community Services Department (Responsible for parks and roadway landscape maintenance)—Provided information on planned public projects with significant irrigation needs.
- The Finance Department—Helped compile data relating to water use, revenue and cost projections.

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Section 1.3: Public Outreach and Plan Adoption

Mountain View provided the public with a variety of opportunities to participate in updating the 2005 UWMP. These opportunities are described in detail below.

Public Outreach

Prior to updating the UWMP, City staff provided a dedicated telephone number, email address and mail address for the public to submit comments or ask questions about the UWMP. To inform the public of the UWMP update process and the availability of these resources, the City placed ads in the Mountain View Voice and the Palo Alto Daily News. Copies of the ads and a list of publication dates are included in Appendix B.

Information on how to participate in the UWMP update process was also posted on the City's website and information was included in the annual water quality Consumer Confidence Report, which is sent to all of Mountain View's water customers in the spring of each year.

Public Hearings and Plan Availability

The City of Mountain View held a public hearing on the draft UWMP to solicit public comment on November 15, 2005. Public Hearing notices were published in the Mountain View Voice and Palo Alto Daily News on two separate occasions, two weeks prior to the meeting date. Notices were also posted on the City's website and on the City Hall bulletin board. Copies of the Public Hearing notices are included in Appendix C.

Copies of the draft plan were made available for public review and comment two weeks prior to the public hearing. Copies were available for review at the Mountain View Public Library and at Mountain View City Hall. An electronic copy of the plan was also made available on the City's website.

Plan Adoption

The City Council adopted the 2005 UWMP at the November 15, 2005 public hearing. A copy of the resolution adopting the 2005 UWMP is included as Appendix D. Following City Council approval of the 2005 UWMP, copies of the adopted plan were made available in the Mountain View Public Library and in Mountain View City Hall.

The adopted document was provided to the Department of Water Resources, the California State Library, Mountain View's wholesale water suppliers and BAWSCA.

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Section 2: Population, Climate and Land Use

Mountain View is nestled between the Santa Cruz Mountains and San Francisco Bay, just 10 miles north of San Jose and 35 miles south of San Francisco. Mountain View covers 12 square miles with an average elevation of 97 feet. The information below details Mountain View's population, land use and climate.

Population

Since publication of the 2000 UWMP, Mountain View's population has remained relatively stable with a current population of 73,100 residents. Future population growth is anticipated at roughly 3% over the next 25 years.

Table 2 below outlines current population and projected population growth over the next 25 years based on data from the Association of Bay Area Governments (ABAG). 2002 ABAG population data was used for the water demand projections in this UWMP, which were also developed with the SFPUC as part of their UWMP update process. However, the SFPUC, with concurrence from BAWSCA agencies, chose 2001 as a base year for water consumption as water usage was in the normal range due to weather and economic conditions.

Table 2: Population - Current and Projected

	2005	2010	2015	2020	2025	2030
Service Area Population	73,100	75,200	77,900	79,700	80,700	81,700

Source: ABAG Projections 2002

Land Use

The City is approximately 98 percent developed. The largest land use is housing, followed by public facilities and parks, and industrial and commercial development. Figure 1, at the end of this section, is a map indicating current land use and zoning within the City.

New development, primarily housing, will continue to replace existing residential and industrial buildings on underdeveloped lots, i.e., infill development. The density of the new residential dwellings, townhouses and small-lot, single-family homes is higher than dwellings they replace. While these dwellings are more water-efficient, higher-density lot development results in more water usage per acre of land.

In contrast, low water use office complexes have replaced most high water use manufacturing and industrial businesses within Mountain View's service area.

A large residential project currently being planned is the Mayfield Mall redevelopment. This project, currently under environmental review, proposes in the range of approximately 500 new residential units. Although this project is still in the initial planning stages, water demands for the project have been accounted for in the water demand analysis prepared for this UWMP.

Climate

Mountain View's semi-arid climate is temperate year round. The average annual temperature is 58.0 degrees and the average annual precipitation is 15.8 inches. During the hottest and driest months (June through September), residents and businesses irrigate more, causing Mountain View's water demand to increase. Rainfall is generally between December and March each year, reducing the need to irrigate landscaping during these months. Table 3 summarizes Mountain View's weather conditions over the last 30 years.

Table 3: Climate

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average ETo*	1.83	2.20	3.42	4.84	5.61	6.26	6.47	6.22	4.84	3.66	2.36	1.83	49.54
Average Rainfall (inches)	3.23	2.88	2.22	0.99	0.37	0.08	0.02	0.05	0.18	0.71	1.83	2.72	15.78
Average Temperature (Fahrenheit)	48.0	51.3	53.6	56.6	60.6	64.9	66.5	66.6	65.5	60.6	53.5	48.1	58.0

Source: Standard ETo Woodside Weather station

Temperature and rainfall from Palo Alto Weather Station

**ETo is defined in the Glossary*

FIGURE 1
MOUNTAIN VIEW ZONING MAP
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Section 3.1: Water Demand — Water System Overview

The City of Mountain View receives most of its water from two wholesale agencies, the SFPUC and the SCVWD. The City also has seven ground water wells, used for supplemental or emergency water supply and one irrigation well. The City is also in the process of developing a recycled water system. The City has two water storage reservoirs with a combined capacity of 6.7 million gallons. The City is also constructing two additional water storage reservoirs to bring the City's total storage capacity to 14 million gallons. Figures 2 shows Mountain View's water service area by wholesale source and Figure 3 identifies general locations of major distribution facilities associated with Mountain View's water sources. Both figures can be found at the end of this section.

There are also several small segments of the City served by California Water Service (Cal Water). These segments are highlighted in Figure 2. As Cal Water's service is separate from the City of Mountain View, information on their water supply is included in the Cal Water UWMP.

San Francisco Public Utilities Commission

The City of Mountain View purchases approximately 90%, an average of 11.3 million gallons per day (MGD), or 35-Acre Feet/Day (AF/Day), of its water from the SFPUC. This water comes predominantly from the Sierra Nevada Mountains and is delivered through the Hetch-Hetchy aqueducts. SFPUC supplies several Santa Clara County communities, including Mountain View, through their 72-inch and 96 inch diameter Bay Division Pipelines.

SFPUC water also includes limited amounts of water produced in its watersheds and facilities in Alameda and San Mateo Counties. All SFPUC sources are disinfected with chloramines.

Mountain View's water purchases from the SFPUC, and those of the SFPUC's other wholesale customers, are defined by the "Settlement Agreement and Master Water Sales Contract (Master Contract)" executed in 1984. The contract expires on June 30, 2009. In terms of water, the Master Contract provides for a 184 million gallon per day (566 AF/Day) "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction in the event of drought, water shortage, earthquake or rehabilitation and maintenance of the system. The SFPUC's wholesale customers have agreed to the allocation of the 184 MGD Supply Assurance among themselves, with each entity's share of the Supply Assurance set forth on a schedule adopted in 1993.

This Supply Assurance survives the termination of the Master Contract in 2009. Mountain View's supply assurance is 13.46 MGD (42 AF/Day).

Santa Clara Valley Water District

Mountain View purchases approximately 10%, 1.2 MGD (3.7 AF/Day) on average, of its water from the SCVWD. Water purchased from the SCVWD is governed by a water sales agreement, providing Mountain View with a supply assurance from the SCVWD of 2 MGD (6.2 AF/Day). Mountain View receives water from the SCVWD through their 24-inch diameter West and Mountain View pipelines.

SCVWD's water system is comprised of local reservoirs, treatment facilities and a treated water distribution system. The SCVWD also imports water from the Sierra Nevada's via the Sacramento/San Joaquin Delta. Imported water is delivered to the SCVWD service area through the South Bay Aqueduct, the Santa Clara Conduit and the Pacheco Conduit. In addition to local reservoirs, treatment facilities, and a treated water distribution system, the SCVWD water system also includes a raw water distribution system, three groundwater sub-basins, and numerous ground-water recharge facilities.

This imported water is blended with local supplies at the District's water treatment facilities. All SCVWD water is disinfected with chloramines. Imported and local surface water supplies are treated at the District's water treatment facilities or are used for groundwater recharge. All SCVWD treated water is disinfected with chloramines.

Groundwater Wells

The SCVWD has statutory authority for management of the Santa Clara County ground water basin. The City of Mountain View operates seven potable water (drinking water) wells and one irrigation well that pump water from this basin. Mountain View wells are used to augment the water supply and are available for emergency or maintenance conditions. The 2001 SCVWD Groundwater Management Plan, included as Appendix E, provides guidance for avoiding groundwater overdraft and land subsidence. Groundwater supplies are discussed in further detail in Section 3.3.

Recycled Water

The City is in the process of developing a recycled water system, in conjunction with the Palo Alto Regional Water Quality Control Plant, to offset irrigation water consumption in the City's North Bayshore Area. Once constructed, the City anticipates the recycled water system, if fully utilized, could offset the City's demand for potable water and groundwater by approximately 10%. The recycled water project is discussed in greater detail in Section 10.

Irrigation Surface Water

Mountain View Shoreline Golf links has a unique irrigation supply. Four ponds collect local surface water run-off and precipitation. The ponds are also supplemented by a local groundwater well near the golf links. The ponds are linked together by a series of pipelines and connect to a pump station feeding the irrigation system for the golf links.

During the peak irrigation periods, the pond supply is blended with approximately 1 MGD of potable water. This potable water use has been incorporated into the irrigation customer type detailed in Table 7. When the recycled water project is constructed, it may replace the use of potable water.

Conservation

Mountain View participates with in the SCVWD's conservation programs to provide rebates for water efficient technologies such washing machine rebates and ultra low flush toilets. Mountain View's conservation programs are described in greater detail in Section 6.

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Section 3.2: Water Demand – Groundwater

The City of Mountain View operates seven potable groundwater wells to supplement water supply on an emergency basis. The City also operates an irrigation well at Shoreline Regional Park to supplement the use of pond water and potable water. The water pumped from the wells meets all drinking water standards and does not require treatment as the wells pump water from deep aquifers within the Santa Clara Valley sub-basin.

The Santa Clara Valley sub-basin is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. The sub-basin has a surface area of approximately 225 square miles. The SCVWD estimates the sub-basin has a multi-year operational storage capacity of 350,000 acre-feet. The SCVWD defines operational storage capacity as the volume of groundwater that can be stored in a sub-basin as a result of SCVWD management measures. Operational storage capacity is generally less than total storage capacity as it accounts for the avoidance of land subsidence and high groundwater conditions, as well as available pumping capacity.

Although the annual storage capacity depends on current groundwater conditions and hydrology, the SCVWD has determined that for any given year, groundwater withdrawals in the Santa Clara Valley sub-basin should not exceed 200,000 acre-feet (assuming adequate water is available in storage) in order to avoid land subsidence.

Currently, the City of Mountain View pumps 112 acre-feet/year of groundwater. There is not any increase in groundwater pumping anticipated to meet projected 2030 average day demands. During multiple year dry scenarios, ground water pumping may increase to 1000 acre-feet by 2030. Mountain View's proposed pumping will not exceed the SCVWD's groundwater withdrawal policy. Detailed data on current and projected groundwater use is outlined in Table 4 and 5.

Table 4: Current and Past Groundwater pumping – AF/Y

Basin Name	2000	2001	2002	2003	2004	2005
SCVWD	1048	0*	68.8	92.6	133	112
Percent of Total Water Supply	7.3	0*	0.5	0.6	0.8	0.7

**Groundwater wells out-of-service for rehabilitation*

Prior to 2001, groundwater was a more significant source of water for Mountain View. However, Mountain View's water use strategy was modified to limit groundwater pumping to emergency and supplemental supply because of cost and operational considerations.

Table 5: Projected Groundwater Pumping – AF/Y

Basin Name	2010	2015	2020	2025	2030
SCVWD	134	202	157	112	69
Percent of Total Water Supply	1.0	1.0	1.0	1.0	<1.0

Section 3.3: Water Demand – Wholesale Supply

As discussed in Section 3.1, the City of Mountain View purchases most of its water from two wholesale agencies, the SFPUC and SCVWD. Prior to development of the UWMP, Mountain View staff worked in conjunction with these wholesale agencies to determine future water demands.

The SFPUC used a water management model (DSS Model) developed by Maddaus Water Management. The model was based upon Association of Bay Area Governments (ABAG) 2002 growth projections, Mountain View customer usage account history, and projected plumbing code water savings. However, as noted in Section 2, 2001 was chosen as a base year for water consumption as water usage was in the normal range due to weather and economic conditions.

The SCVWD developed a separate water demand based on the Institute for Water Resources Municipal and Industrial Needs model. The SCVWD model correlates to the demands produced in the SFPUC model.

Water conservation savings are categorized in the UWMP as a supply source, rather than a reduction in demand, to provide a tracking mechanism. It expected there will additional savings from plumbing fixture changes-outs. The savings are attributed to enhanced conservation programs expected to be implemented by 2030.

Based on average annual water use, Mountain View's water consumption will increase approximately 15% over the next 25 years. This increase falls within the City's contractual water supply assurances and the current supply capacity of both wholesale sources.

Table 6: Current and Planned Water Use

Water Supply Sources	2000	2005 (Modeled)	2005 (Actual)	2010	2015	2020	2025	2030
SFPUC	11,840	12,970	11,258	13,890	14,114	14,338	14,562	14,786
SCVWD Treated Water	1,318	1,320	1,120	1,320	1,370	1,400	1,435	1,465
Groundwater	1,048	110	112	134	202	157	112	67
Additional Conservation	--	--	--	90	134	179	228	269
Shoreline Golf Links (Pond Water)	Included in Ground water	500	500	303	200	220	204	253
TOTAL	14,200	14,900	12,990*	15,737	16,021	16,294	16,561	16,840
Alternate Source Recycled Water**	--	--	0	600	900	1,200	1,200	1,200

**2005 total actual water usage has reduced demands due to higher than normal rainfall.*

***Assumes completion of recycled water project.*

Use of Recycled water may offset potable water and Shoreline Golf Links water use.

Section 3.4: Water Demand — Demand By Customer Type

Mountain View's water customers are divided into six categories:

- Single family residential
- Multi-family residential
- Commercial (includes mobile home and hotels)
- Industrial (includes institutional customers such as schools and hospitals)
- Irrigation (includes landscape irrigation)
- Other (includes construction water use)

Table 7 in this section details Mountain View's current and projected water use by each of these customer types. Estimated conservation savings, resulting from the installation of water saving plumbing fixtures, have been incorporated into the projected demands. Residential customers compose more than 50% of Mountain View's water use, followed by irrigation. Given current growth projections, the percentage distribution between residential customers and other account types is not anticipated to change dramatically in the future. Generally speaking, the percentage of water use by customer type is:

- Single family residential: 25%
- Multi-family residential: 30%
- Landscape irrigation: 25%
- Commercial: 15%
- Industrial: 5%

Basis for Water Demand Projections

The water demand projections for this UWMP were developed as part of a series of technical studies performed in support of the Capital Improvement Program for the SFPUC Regional Water System. These studies include: *SFPUC Wholesale Customer Water Demand Projections* (URS 2004), *SFPUC Wholesale Customer Water Conservation Potential* (URS 2004), *SFPUC Wholesale Customer Recycled Water Potential* (RMC 2004), and *SFPUC 2030 Purchase Estimates* (URS 2004).

Water demand projections were developed in part using the Maddaus Water Management DSS model. Two main steps were involved in developing the model: (1) Establishing base-year water demand at the end-use level (such as toilets, showers), calibrating the model to initial conditions; and (2) Forecasting future water demand based on future demands of existing water service accounts and future growth in the number of water service accounts.

Establishing the base-year water demand at the end-use level is accomplished by breaking down total historical water use for each type of metered water service account (single family, multifamily, commercial, irrigation, etc.) to specific end uses, such as toilets, faucets, showers and irrigation. The model selected 2001 as the base year for consumption as it mirrored normal rainfall and historic demands.

Forecasting future water demand is accomplished by determining the growth in the number of water service accounts in a wholesale customer service area. Once these rates of change were determined, they were input into the model and applied to those accounts and their end water uses. The model also incorporates the effects of the plumbing and appliance codes on fixtures and appliances including toilets (1.6 gal/flush), showerheads (2.5 gal/minute), and washing machines (lower water use) on existing and future accounts.

The model also determined unit demand factors for both single-family and multi-family residences. Based on this model, single-family residents consume 181 gallons per day and multi-family residents consume 141 gallons per day.

Demand Data

Table 7 on the following page details the demand data produced by the end use model. Mountain View's actual water demands in 2000 are higher than the forecasted total demands for 2005 due primarily to the downturn in the local economy. This downturn resulted in a dramatic reduction in water demand for the commercial and industrial accounts. The water demand for 2005 is also lower than the model due to reduced water demands in the winter and spring of 2005 resulting from higher than normal rainfall.

It should also be noted, the modeled number of multi-family units differs from the actual number of multi-family units shown in 2000 and 2005. This is due to a variation between the City's utility billing system and the model. The City's billing system considers town homes single-family residences and the model accounts for town homes as multi-family dwellings. Despite this difference in the allocation of dwelling units, data regarding actual and modeled water demand is consistent.

Table 7: Water Demand by Customer Type

Year	Water Use Sectors	Single family	Multi-family	Commercial	Industrial	Landscape	Other	TOTAL
2000	# of accounts	10,799	2,445	1,438	678	836	50	16,246
	Deliveries AF/Y	3,375	3,917	2,290	1,022	3,592	6	14,202
Projected 2005	# of accounts	11,081	2,503	1,484	641	863	66	16,638
	Deliveries AF/Y	3,151	3,505	1,876	548	3,049	6	12,135
Modeled 2005	# of accounts	12,808	837	1,178	422	733	50	16,029
	Deliveries AF/Y	3,401	3,762	2,170	790	3,793	14	13,930
2010	# of accounts	13,195	882	1,272	456	792	52	16,649
	Deliveries AF/Y	3,438	3,867	2,273	836	4,096	14	14,524
2015	# of accounts	13,668	913	1,319	472	820	54	17,246
	Deliveries AF/Y	3,474	3,889	2,307	855	4,244	15	14,784
2020	# of accounts	13,984	936	1,368	490	851	55	17,681
	Deliveries AF/Y	3,503	3,888	2,354	878	4,404	15	15,042
2025	# of accounts	14,159	945	1,419	508	883	56	17,969
	Deliveries AF/Y	3,498	3,861	2,409	902	4,567	16	15,253
2030	# of accounts	14,334	956	1,470	526	915	56	18,257
	Deliveries AF/Y	3,497	3,845	2,468	927	4,731	16	15,484

Section 3.5: Additional Water Demand

Mountain View's additional water demands are attributed to water loss, which is comprised of two components. One component is the anticipated losses in the distribution system due to meter inaccuracies and un-metered construction or public and health and safety uses such as fire suppression and water main flushing.

A second component of water loss is unaccounted-for water resulting from distribution system leaks or water main breaks. Mountain View's unaccounted-for water is approximately 5-8% of the City's total water use. However, the 2000 water losses were included within the metered water. The City has a robust infrastructure repair policy and it is anticipated annual water main replacements will keep water system losses to less than 8%.

Table 8: Additional Water Demands and Losses- AF/Y

Water Use	2000	2005	2010	2015	2020	2025	2030
Water Loss	-	850	1,020	1,040	1,060	1,070	1,080
Metered Water	14,200	12,140	14,520	14,790	15,040	15,250	15,490
Total Water Use	14,200	12,990	15,540	15,830	16,100	16,320	16,570

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Section 3.6: Water Demand — Water Transfer and Exchange Opportunities

The City of Mountain View has not pursued water transfer or exchange agreements with other retail water agencies. As discussed throughout the UWMP, Mountain View has two wholesale sources of water, ground water wells and a planned recycled water system enabling the City to provide customers with a reliable supply of water without the need to exchange or transfer water between other retail agencies on a long-term basis. However, the City does have water system inter-ties with the Cities of Sunnyvale and Palo Alto to assist in localized short-term water exchanges in the event of an emergency.

Section 3.7: Water Demand — Development Of Desalinated Water

Although located near the San Francisco Bay, the City of Mountain View does not have any plans to independently develop desalinated water as a potential water supply.

Although the City is not a participant at this time, a regional study is being developed by wholesale water agencies around the San Francisco Bay Area. This study is examining the feasibility of one or more desalinization facilities on the San Francisco Bay. If constructed, these facilities could provide a reliable alternate water supply for Bay Area communities.

Section 3.8: Water Demand — Resource Maximization/Import Minimization Plan

As Mountain View purchases water from wholesale agencies, the City's ability to influence regional processes to maximize water resources and minimize water importation is limited. However, the City actively participates in policy discussions regarding regional water supply through BAWSCA, the SFPUC and the SCVWD. The City has worked with these agencies to develop regional plans. Examples include the Integrated Regional Water Supply Master Plan being developed by BAWSCA and other regional water agencies and the Integrated Water Resources Plan being developed by the SCVWD.

FIGURE 2

MOUNTAIN VIEW WATER SERVICE AREA

(On Next Page)

Section 4.1: Supply And Demand Comparison – Normal Water Year

The following tables detail the totals of Mountain View's water use and customer demands. As discussed earlier in this section, the City of Mountain View has adequate supply to meet the needs of it's customers under normal water supply conditions until 2030.

The SCVWD's modeling performed for this plan shows based on historic hydrology, additional investments in new supply will be necessary after 2015 beyond the IWRP Study 2003 "no regrets" portfolio investment. The SCVWD IWRP framework has identified various portfolios meeting future needs under a variety of risks scenarios. This framework will be utilized to determine the best investment opportunities so additional supplies will be available to meet demand in the years 2020 and beyond.

Table 9: Projected Maximum Normal Water Year Supply – AF/Y

	2010	2015	2020	2025	2030
Supply	15,737	16,021	16,294	16,561	16,840
% of year 2005	121	124	125	128	130

Table 10: Projected Maximum Normal Water Year Demand – AF/Y

	2010	2015	2020	2025	2030
Demand	15,541	15,829	16,092	16,319	16,568
% of year 2005	119	122	124	126	128

Table 11: Projected Normal Year Supply and Demand Comparison – AF/Y

	2010	2015	2020	2025	2030
Supply Totals	15,837	16,021	16,294	16,561	16,840
Demand Totals	15,541	15,829	16,092	16,319	16,568
Difference (Supply minus Demand)	196	192	202	242	272
Difference as % of Supply	1.2	1.2	1.2	1.4	1.6
Difference as % of Demand	1.3	1.2	1.3	1.5	1.6

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Section 4.2: Supply And Demand Comparison – Projected Single-Dry-Year Supply And Demand

Under a single dry-year drought scenario, the City of Mountain View can expect a 13% reduction in total wholesale supply as compared to normal delivery.

To offset this reduction, the City has the ability to increase groundwater pumping through its seven-groundwater wells. Demand reduction may also be achieved with the use of recycled water.

According to the SCVWD, the local groundwater aquifer has sufficient capacity to meet the City's needs. Tables 12 through 14 describe Mountain View's water supply and demand under this scenario. Mountain View took a conservative approach to this analysis and did not reduce demands during the single dry-year scenario.

Table 12: Projected Single-Dry Year Water Supply – AF/Y

	2010	2015	2020	2025	2030
Supply	15,737	16,021	16,294	16,561	16,840
% of Projected Normal	100	100	100	100	100

Table 13: Projected Single-Dry Year Water Demand – AF/Y

	2010	2015	2020	2025	2030
Demand	15,541	15,829	16,092	16,319	16,568
% of Projected Normal	100	100	100	100	100

Table 14: Projected Single-Dry Year Supply and Demand Comparison – AF/Y

	2010	2015	2020	2025	2030
Supply Totals	15,737	16,021	16,294	16,561	16,840
Demand Totals	15,541	15,829	16,092	16,319	16,568
Difference (Supply minus Demand)	196	192	202	242	272
Difference as % of Supply	1.2	1.2	1.2	1.4	1.6
Difference as % of Demand	1.3	1.2	1.3	1.5	1.6

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Section 4.3: Supply and Demand Comparison — Projected Multiple Dry-Year Supply And Demand

Under a multiple dry-year drought scenario, the City can expect a 20% reduction in SFPUC wholesale supply and a 5% reduction in SCVWD wholesale supply. For this analysis, water demand was reduced by 5% to reflect the anticipated change in water consumption habits in a multiple dry-year scenario.

As with a single year drought scenario, the City can offset this reduction through additional groundwater pumping or potentially diverting irrigation demands through the use recycled water. The SCVWD has indicated the local groundwater aquifer has sufficient capacity to meet the City's needs. Tables 15 through 29 detail Mountain View's supply and demand conditions under this scenario.

The District's long-term planning goal is ensure that in any given year there is never a shortage greater than 5% of the conservation demand. IWRP 2003 found shortages up to 5% could be managed through demand reduction programs and voluntary cutbacks without significant economic losses to the community. Based on the long term planning and modeling analysis performed by the District in the development of the 2005 UWMP, countywide demands can be reliably met if additional investments beyond the IWRP 2003 "no regrets" scenario are undertaken.

Table 15: Projected Supply — Multiple-year Dry Period Ending in 2010 – AF/Y

	Year 1	Year 2	Year 3
Supply	15,737	14,850	14,850
% of Projected Normal	99.3	93.7	93.7

Table 16: Projected Demand — Multiple-year Dry Period Ending in 2010 – AF/Y

	Year 1	Year 2	Year 3
Demand	15,441	14,764	14,764
% of Projected Normal	100	95.6	95.6

**Table 17: Projected Supply & Demand Comparison Multiple-dry Year
Period Ending in 2010 – AF/Y**

	Year 1	Year 2	Year 3
Supply Totals	15,737	14,850	14,850
Demand Totals	15,441	14,764	14,764
Difference (Supply minus Demand)	296	86	86
Difference as % of Supply	1.9	0.6	0.6
Difference as % of Demand	1.9	0.6	0.6

Table 18: Projected Supply – Multiple-year Dry Period Ending in 2015 – AF/Y

	Year 1	Year 2	Year 3
Supply	16021	15196	15196
% of Projected Normal	100	94.9	94.9

Table 19: Projected Demand – Multiple-year Dry Period Ending in 2015 – AF/Y

	Year 1	Year 2	Year 3
Demand	15829	15037	15037
% of Projected Normal	100	95	95

**Table 20: Projected Supply & Demand Comparison During Multiple-Dry Year
Period Ending in 2015 – AF/Y**

	Year 1	Year 2	Year 3
Supply Totals	16021	15196	15196
Demand Totals	15829	15037	15037
Difference (Supply minus Demand)	192	159	159
Difference as % of Supply	1.2	1.0	1.0
Difference as % of Demand	1.2	1.1	1.1

Table 21: Projected Supply — Multiple-year Dry Period Ending in 2020 – AF/Y

	Year 1	Year 2	Year 3
Supply	16294	15348	15348
% of Projected Normal	100	94.2	94.2

Table 22: Projected Demand — Multiple-year Dry Period Ending in 2020 – AF/Y

	Year 1	Year 2	Year 3
Demand	16092	15288	15288
% of Projected Normal	100	95	95

Table 23: Projected Supply & Demand Comparison During Multiple-dry Year Period Ending in 2020 – AF/Y

	Year 1	Year 2	Year 3
Supply Totals	16294	15348	15348
Demand Totals	16092	15288	15288
Difference (Supply minus Demand)	202	60	60
Difference as % of Supply	1.2	.4	.4
Difference as % of Demand	1.2	.4	.4

Table 24: Projected Supply — Multiple-year Dry Period Ending in 2025 – AF/Y

	Year 1	Year 2	Year 3
Supply	16561	15894	15894
% of Projected Normal	100	96.0	96.0

Table 25: Projected Demand — Multiple-year Dry Period Ending in 2025 – AF/Y

	Year 1	Year 2	Year 3
Demand	16319	15503	15503
% of Projected Normal	100	95	95

**Table 26: Projected Supply & Demand Comparison During
Multiple-dry Year Period Ending in 2025 – AF/Y**

	Year 1	Year 2	Year 3
Supply Totals	16561	15894	15894
Demand Totals	16319	15503	15503
Difference (Supply minus Demand)	242	391	391
Difference as % of Supply	1.5	2.5	2.5
Difference as % of Demand	1.5	2.5	2.5

Table 27: Projected Supply — Multiple-year Dry Period Ending in 2030 – AF/Y

	Year 1	Year 2	Year 3
Supply	16840	15859	15859
% of projected normal	100	94.2	94.2

Table 28: Projected Demand — Multiple-year Dry Period Ending in 2030 – AF/Y

	Year 1	Year 2	Year 3
Demand	16568	15740	15740
% of projected normal	100	95	95

**Table 29: Projected Supply & Demand Comparison During Multiple-dry Year
Period Ending in 2030 – AF/Y**

	Year 1	Year 2	Year 3
Supply totals	16840	15859	15859
Demand totals	16568	15740	15740
Difference (supply minus demand)	288	119	119
Difference as % of Supply	1.6	0.7	0.7
Difference as % of Demand	1.6	0.7	0.7